Rhode Island Growth Model

Spring 2011

You may be wondering…

- Why use a growth model?
- How is it different?
- How is it calculated?
- Why is it useful?
- How will it be used?

Why use a growth model?

- Progress matters.
- The RIGM enables us to look at **growth** in addition to **proficiency** to get a fuller picture of student achievement.
- It asks a new question: Are students and schools making progress?

The Colorado Department of Education has been using a similar growth model for a few years and has developed some excellent resources.

To view a short video summarizing how the growth model works and why it is useful, visit:

http://www.cde.state.co.us/media/cdeedserv/growthmodel/GrowthModelIntroPt01.html

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How is it different?

- NECAP shows student performance relative to state standards

  Q: Is Alex proficient in 7th grade reading?

- The growth model shows student performance relative to academic peers (students at the same grade level who have scored similarly on state assessments in the past)

  Q: How much progress did Alex make in reading relative to his academic peers?

The RIGM data does not replace the traditional NECAP data, it supplements it to provide a multi-dimensional picture of a student's achievement.

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Percentile ≠ Percentage

- Percent is static (out of 100); percentile is relative to how well everyone else did.
- Suppose 100 students take a test with 10 questions.
- If a student got 8 correct, then the percentage that she got correct is 80.
- Suppose the other 99 students all got 70% (or fewer) of the items correct. Then the student who got 80% outperformed the other 99 students. She is in the 99th percentile.

How is it calculated?

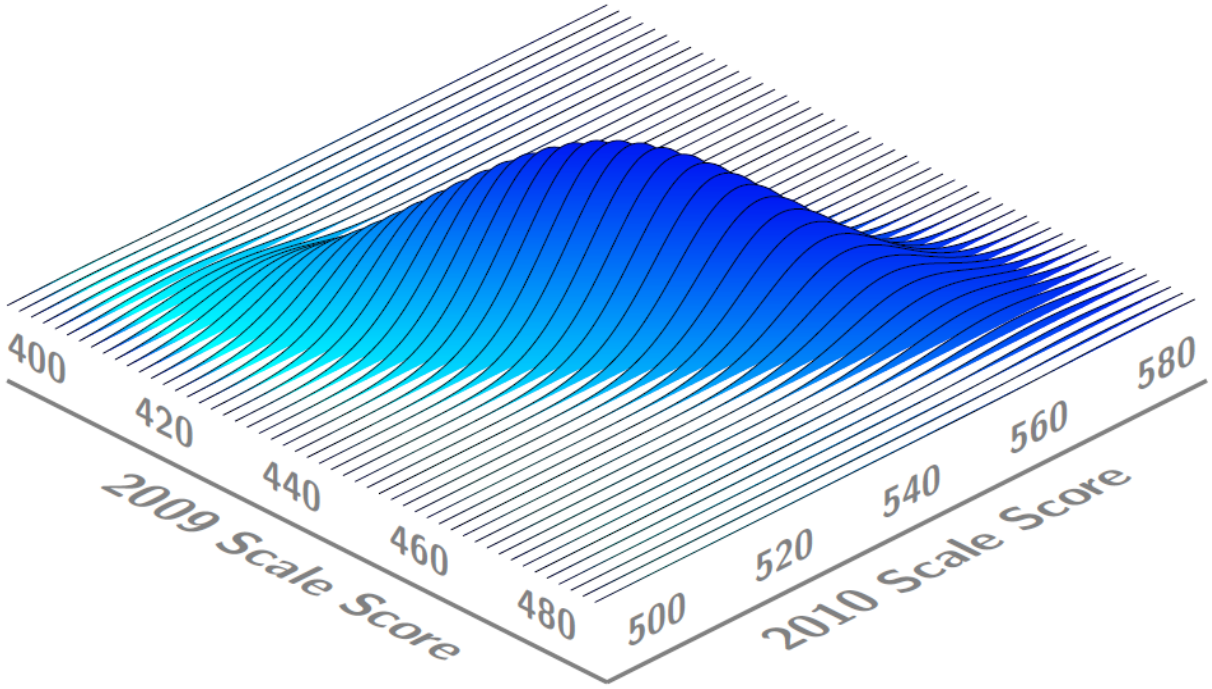
- Each student's growth is compared to the growth of his or her academic peers (students with a similar test score history)

- The growth is expressed as a percentile, from 1-99, with higher being better

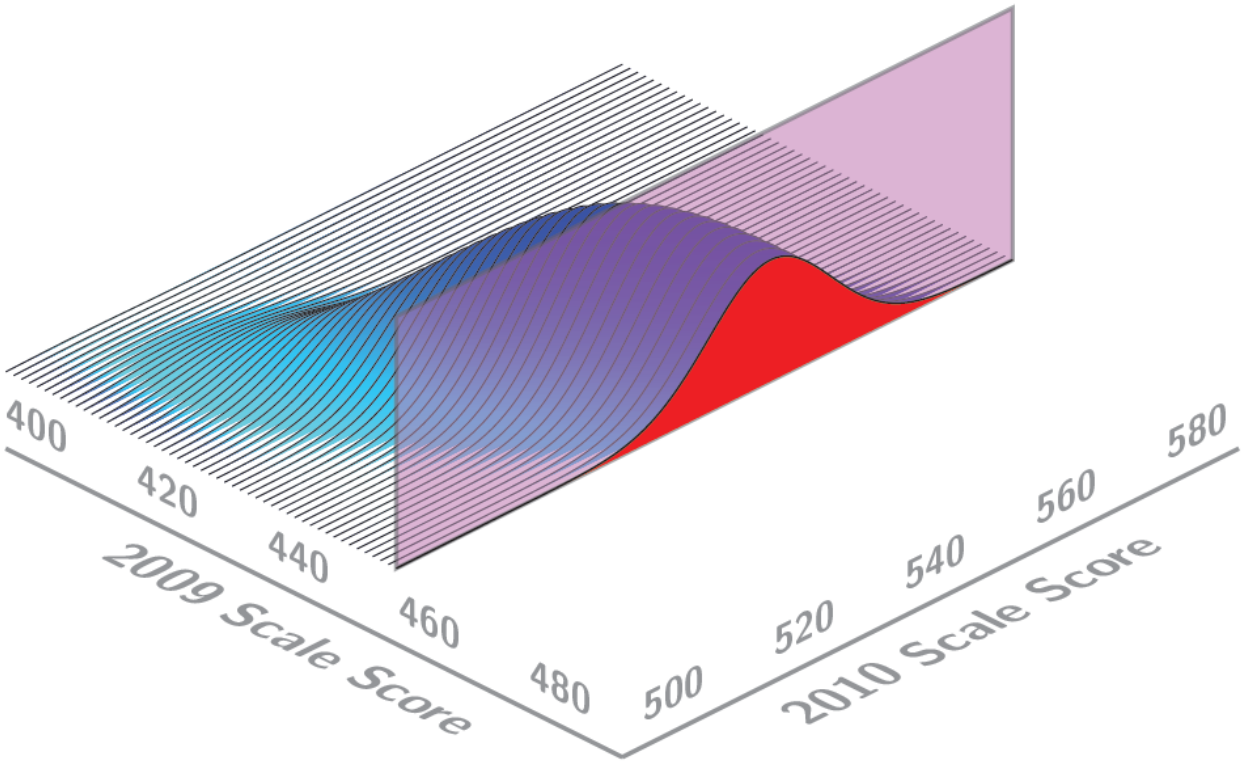
Q: How much did Alex improve his reading from 6th to 7th grade, relative to his academic peers?

A: An SGP of 74 means that Alex made greater improvements in his reading than 74% of his peers.

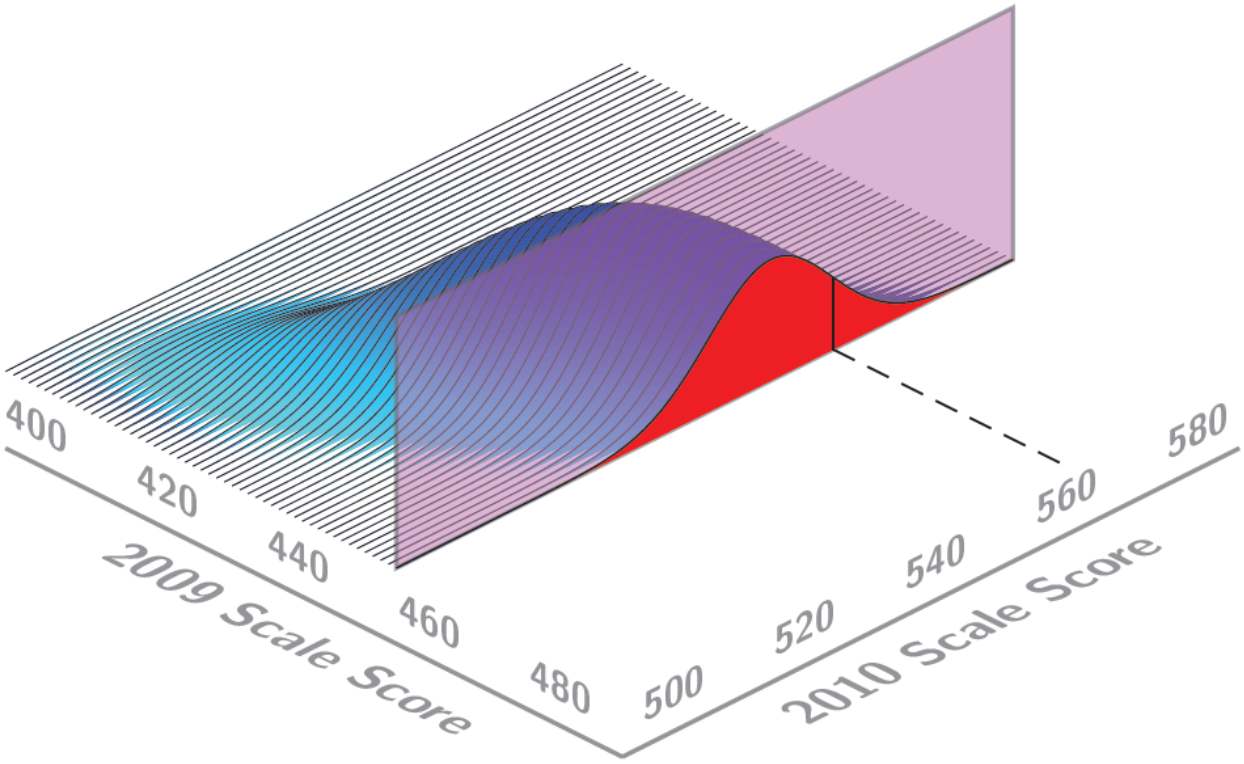
This graphic represents the distribution of scores of all students who took the 4th Gr. NECAP in 2009 AND the 5th Gr. NECAP in 2010



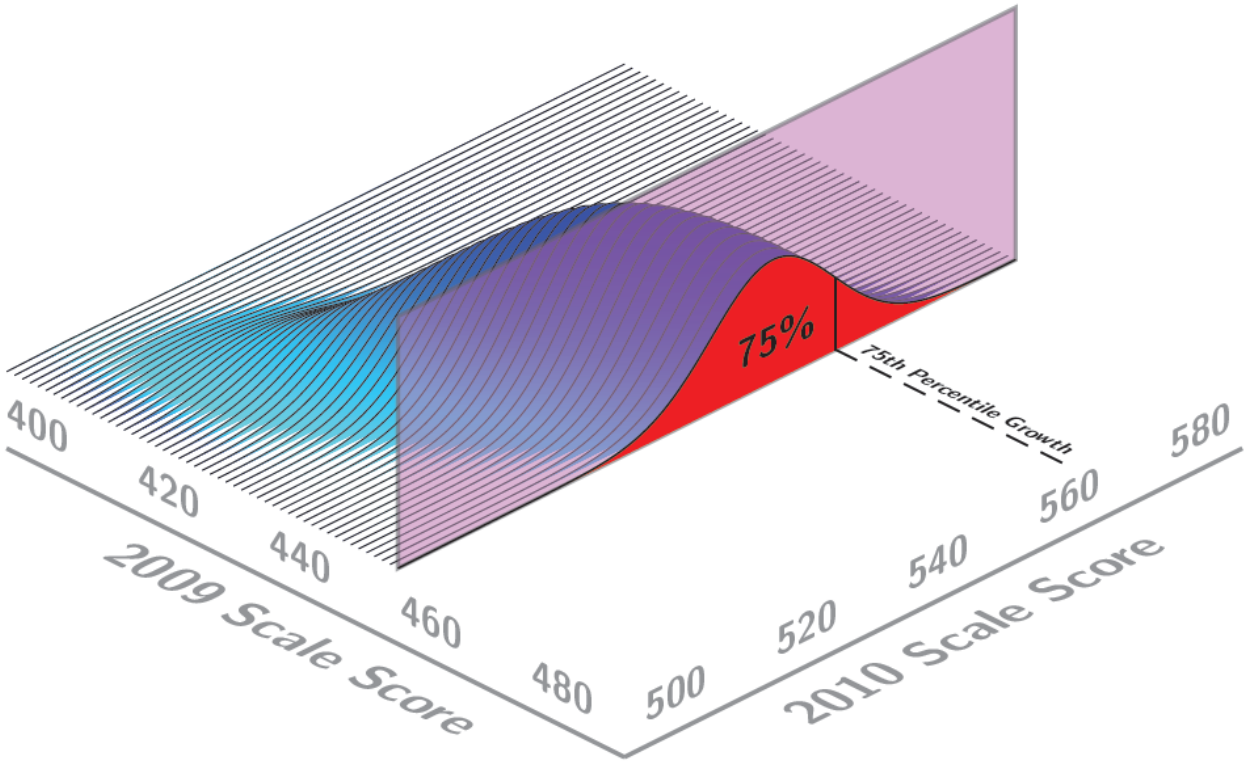
We can slice the distribution at any score on the left to see how that academic peer group performed the following year. Below you see the 2010 data for students who scored 455 in 2009.



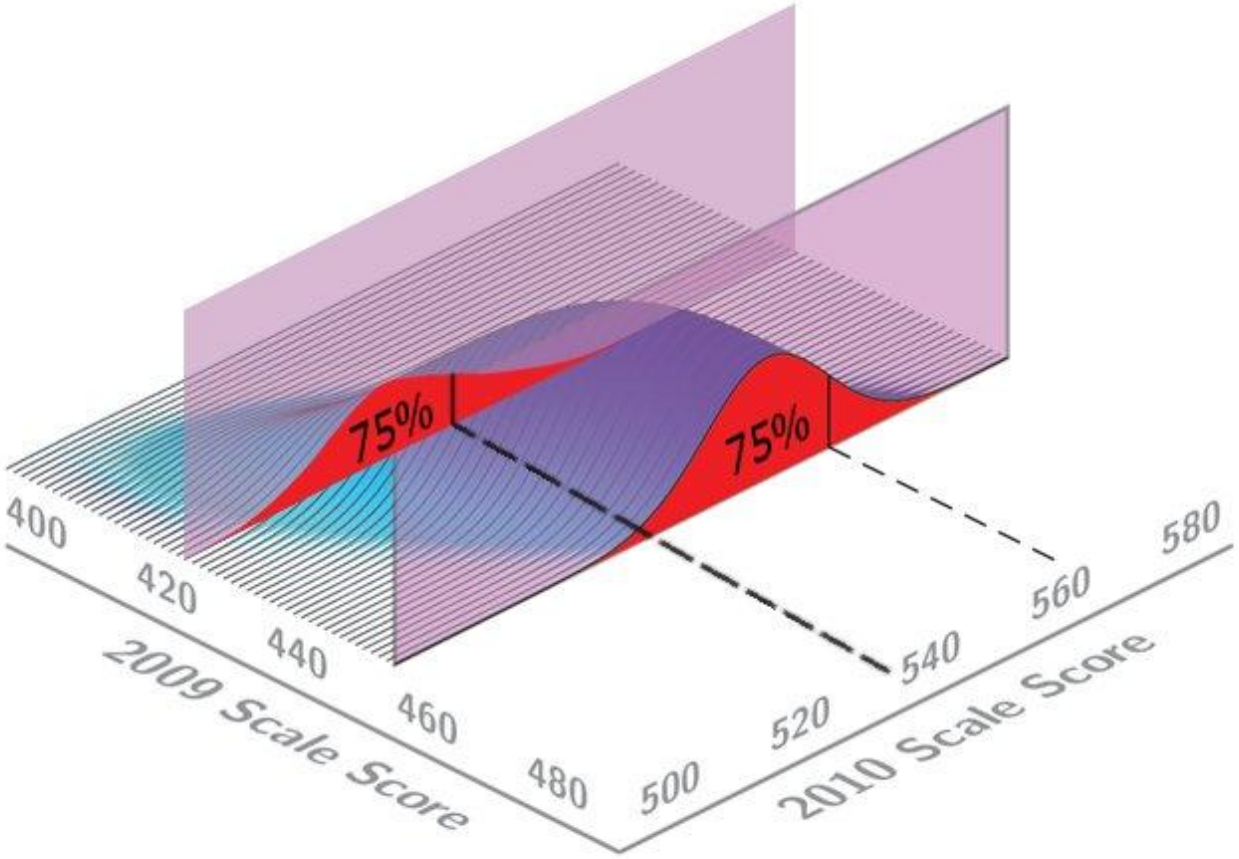
Let's take a look at one student who scored 455 in 2009 and 565 in 2010. We see that for that academic peer group, a score of 565 is on the high end of the distribution.



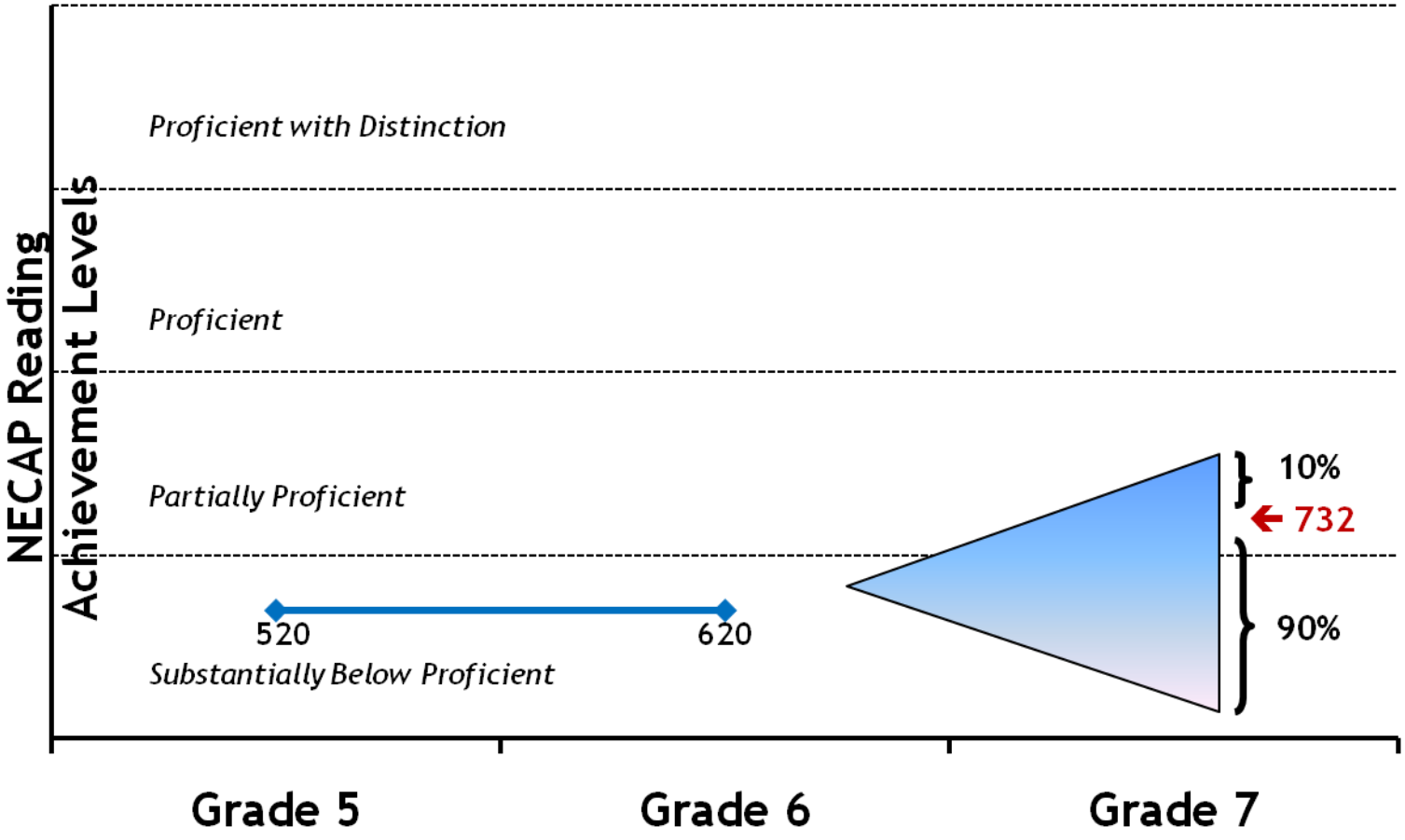
In fact, this student outperformed 75% of his academic peers. He is at the 75th percentile or has an SGP of 75.



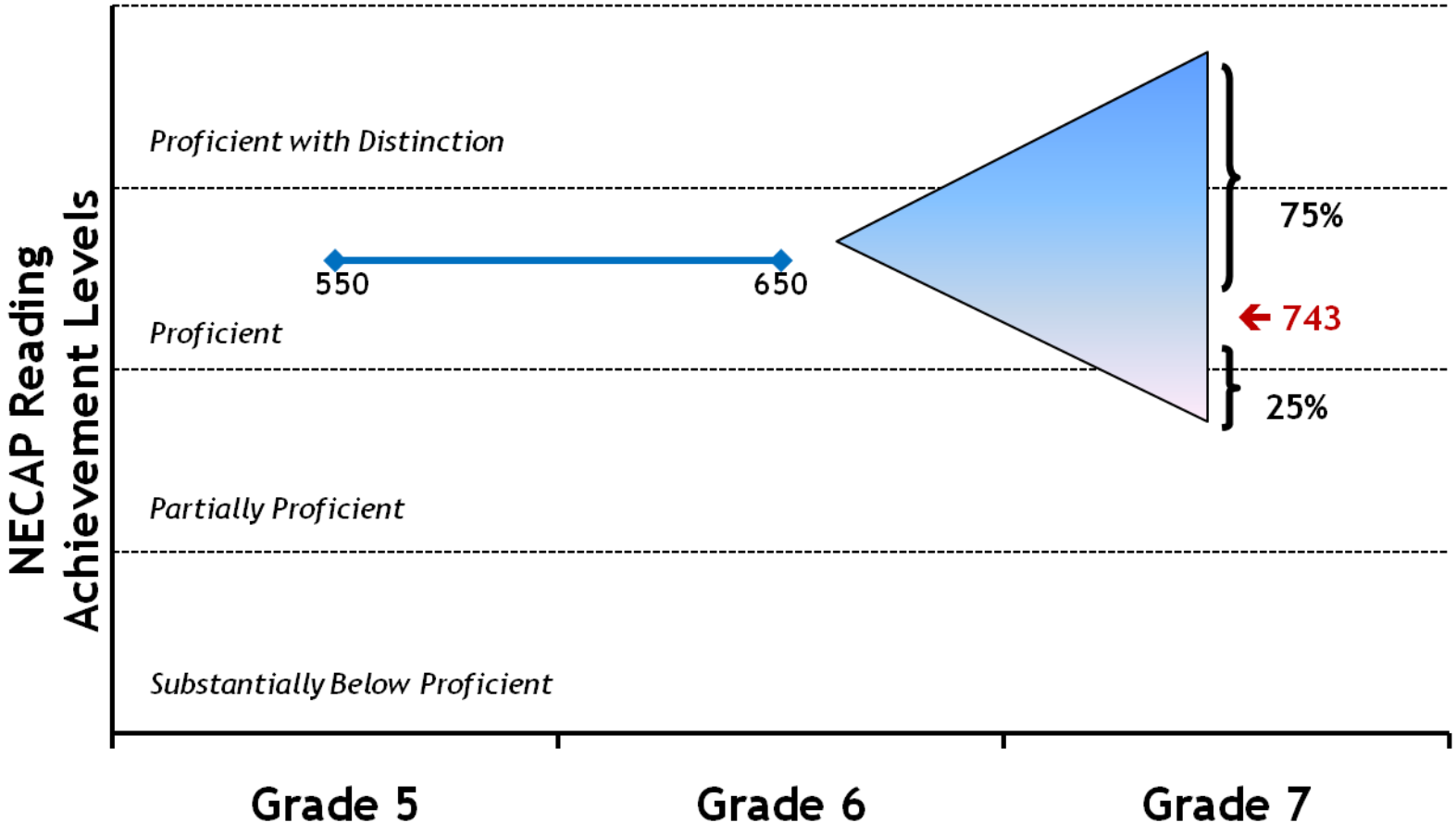
This graphic shows how two students with different scores could have the same SGP. The second slice shows the 2010 scores of students who scored 420 in 2009. A 2010 score of 540 would place that student at the 75th percentile for her peer group.



This is another way to look at SGP. The triangle represents the distribution of 7th Gr. NECAP scores for a group of academic peers. Student A's growth from Grade 6 to Grade 7 is in the 90th percentile (SGP = 90)



Student B is a higher-performing student, but his growth from Grade 6 to Grade 7 is in the 25th percentile of his academic peers (SGP=25).



How is it calculated?

To aggregate the data, we find the median student growth percentile:

- a measure of central tendency
- the number at which half of the students in the group have a higher SGP and half have a lower SGP

How is it calculated?

Why use the median instead of the mean?

- The median is more appropriate when using percentiles.

- The mean is highly influenced by very high and very low scores, whereas the median is a better indicator of the true center of the data.

How will individual student growth scores be used to calculate Growth Ratings for schools?

Student's Name	SGP
Ross	5
Catherine	14
Ray	25
John	40
Lauren	51
Brian	56
Amanda	60
James	62
Marcus	70
Toni	82
Jasmine	85
Morgan	90
Sam	96

Imagine that the students listed on the left are all the students in a school. Note that they are sorted from lowest to highest SGP.

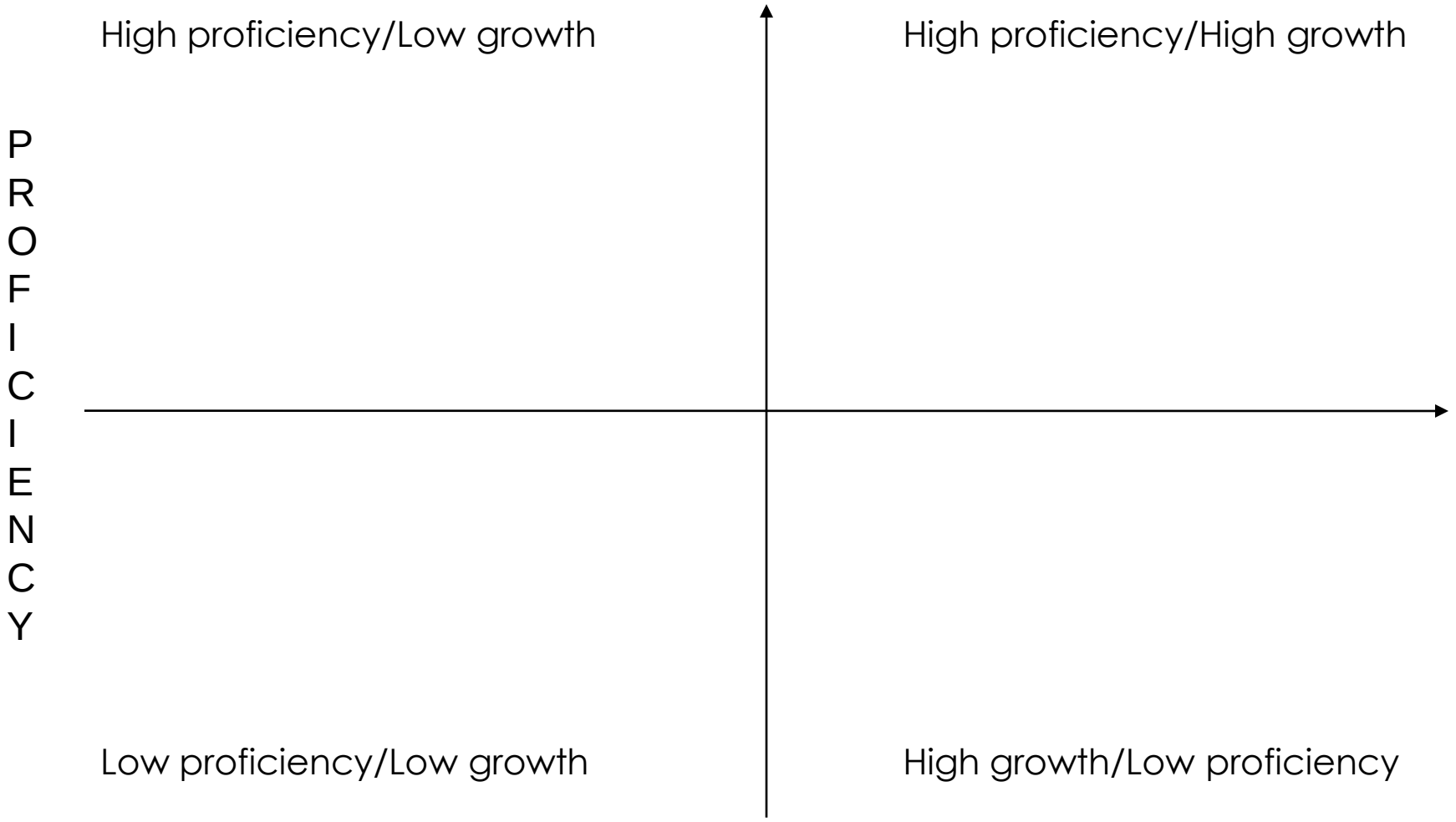
The point at which half of the students have a higher SGP and half have a lower SGP is the median for that school.

Median SGP for the school

The median SGP could be calculated for a district, a class, or another student group.

How is it calculated?

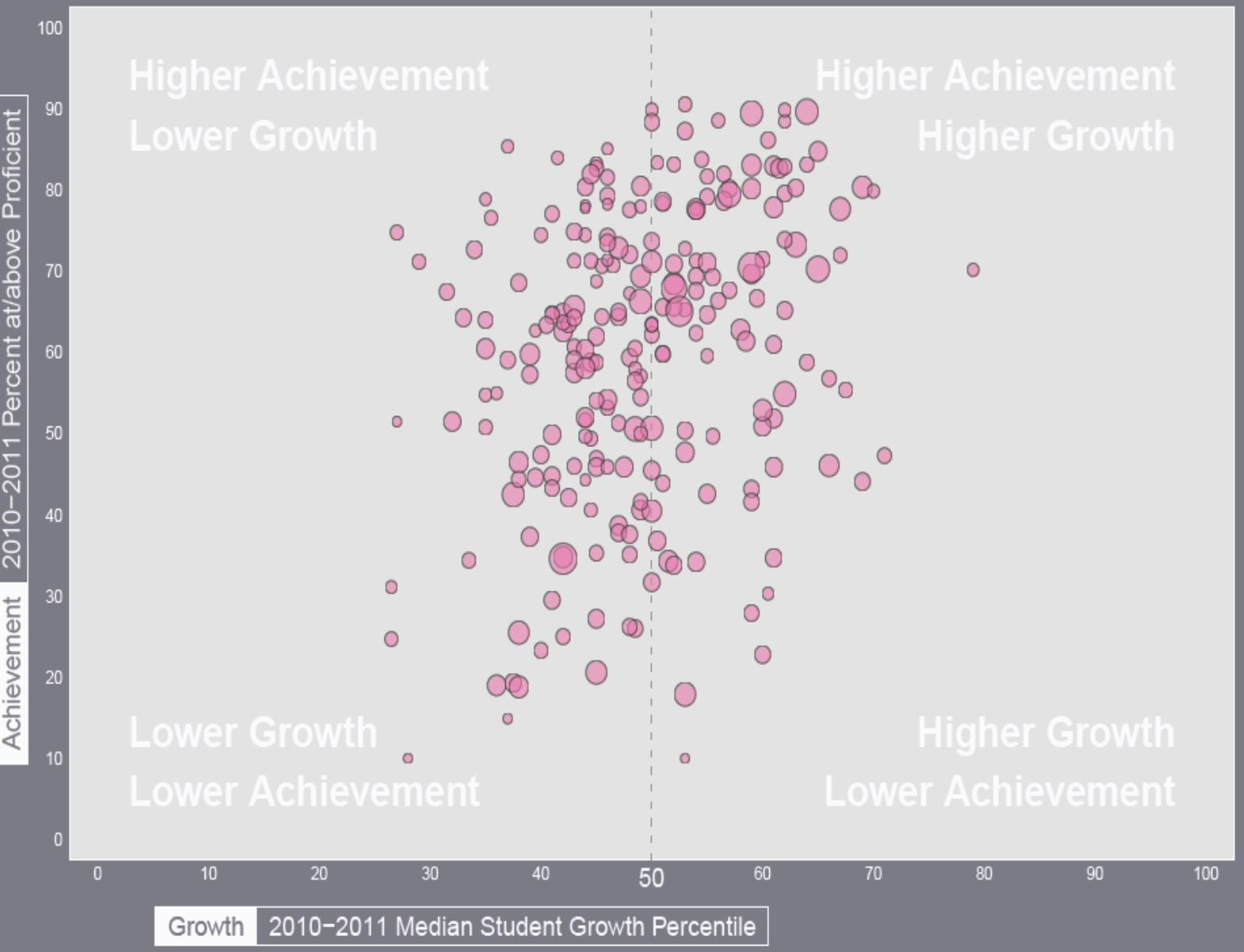
We can see proficiency and growth data on the same graph using a scatter plot.



Growth and Achievement

Rhode Island School Performance

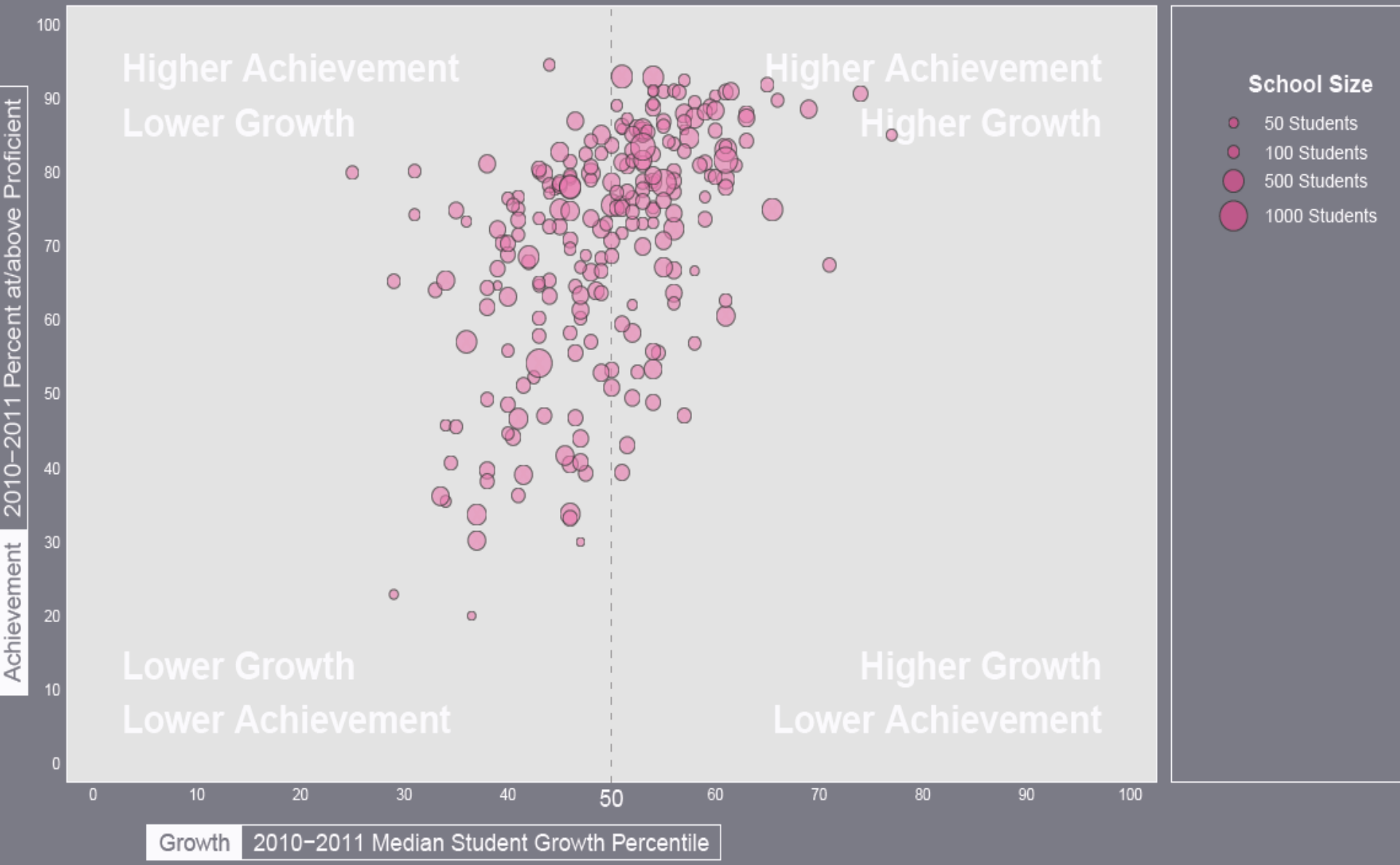
2010–2011 Mathematics Growth & Achievement



Growth and Achievement

Rhode Island School Performance

2010–2011 Reading Growth & Achievement



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Why is it useful?

- The growth model has stretch. Students from the very bottom and the very top of the proficiency scale have equal potential to achieve an SGP of 1-99.

- It can encourage students/schools/districts with low proficiency who demonstrate high growth.

- It can discourage complacency in students/schools/districts that are consistently high performing.

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How will it be used?

- Initially, the growth model data can be used for school- and district-level analysis and for program evaluation and planning.

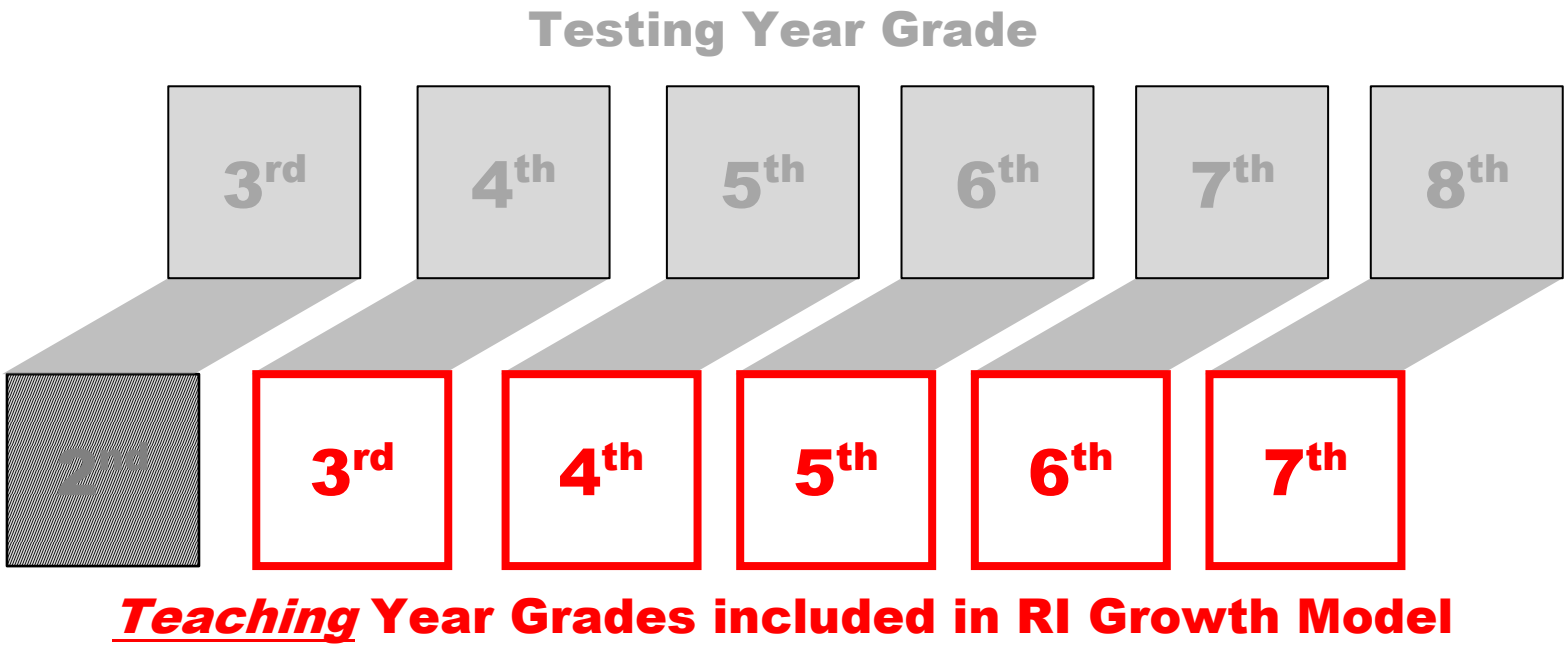
- Later, we will report SGP scores for each student to determine how his or her growth compares with their academic peers across the state.

- Eventually, SGP will be used as one component of the educator evaluation system.

  For more information, please consult the RI Model Educator Evaluation System http://www.ride.ri.gov/EducatorQuality/EducatorEvaluation/

Teaching Year Data Grades

The RI Growth Model requires a minimum of 2 years of testing data. Therefore, only grades 3-7 will be included in the growth calculations.



What about high schools?

- We do not currently have data for high schools
- When we move to the Partnership for Assessment of Readiness for College and Careers (PARCC), we hope to have growth data for grades 3-11

How will it be used?

- What data will be available in the future?
- The following slides show examples of how SGP data is reported in others states using a similar growth model.
- These reports make it easy for parents to understand how their student is progressing, as compared to their peers.

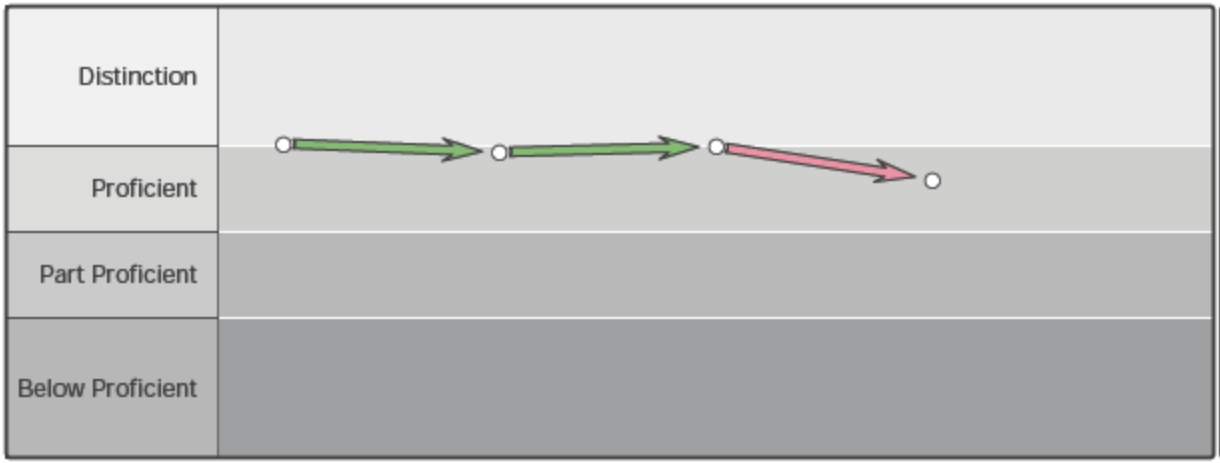
How to interpret this growth and achievement report

NECAP Test Score

Student's rate of growth

Suggested Uses

- Identify the rate of progress needed in order to reach or maintain proficient status on the NECAP next year.
- Review past growth to assess student progress toward NECAP achievement goals
- Development of remediation or enrichment plans based on rate of growth needed to reach higher NECAP achievement levels



Math

Achievement

NECAP M Scale Sc

Growth

Level

High

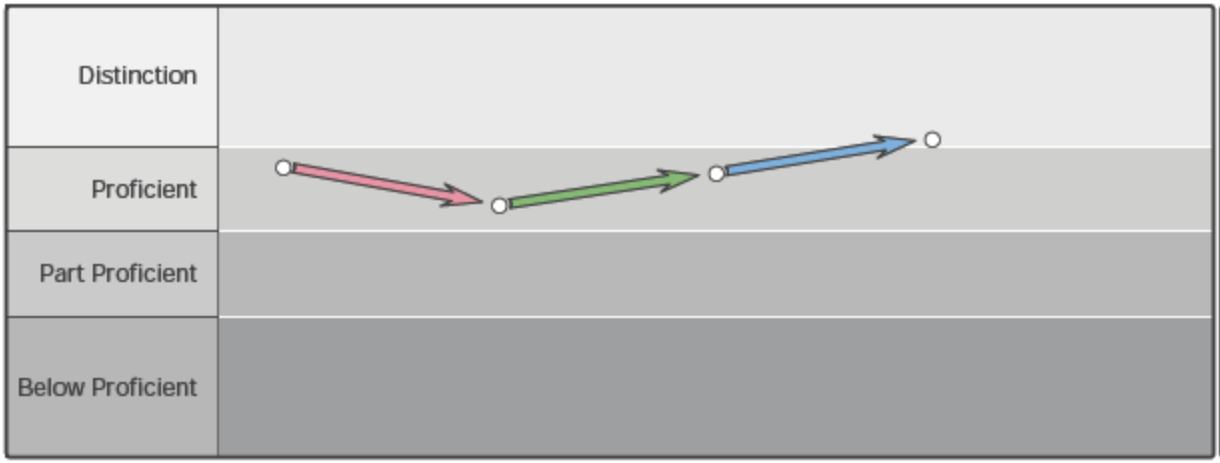
Typical

Low

	Grade 3 2007	Grade 4 2008	Grade 5 2009	Grade 6 2010	Next Year
Scale Score Achievement Level	354 Distinction	454 Proficient	554 Distinction	648 Proficient	
Growth Percentile Growth Level		47 Typical	55 Typical	10 Low	

Achievemer

Growth



Reading

Achievement

NECAP Re Scale Sc

Growth

Level

High

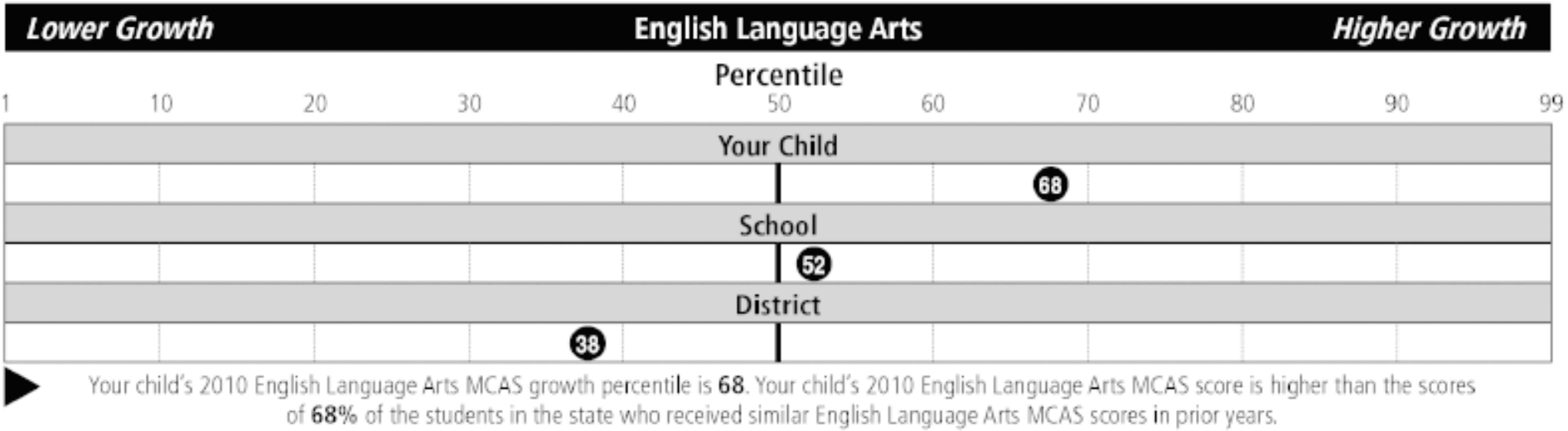
Typical

Low

	Grade 3 2007	Grade 4 2008	Grade 5 2009	Grade 6 2010	Next Year
Scale Score Achievement Level	353 Proficient	445 Proficient	551 Proficient	661 Distinction	
Growth Percentile Growth Level		16 Low	59 Typical	91 High	

Achievemer

Growth



Your child's 2010 English Language Arts MCAS growth percentile is **68**. Your child's 2010 English Language Arts MCAS score is higher than the scores of **68%** of the students in the state who received similar English Language Arts MCAS scores in prior years.

For a preview of the growth data reporting capabilities that RIDE would like to offer once our Information Management System is complete, please take a look at the Colorado Growth Model Quickstart video, available at:

http://www.schoolview.org/ColoradoGrowthModel2.asp

This tool allows the user to disaggregate data by subgroups, compare districts based on data, and look at trends in data over time. It provides a wealth of information for parents, teachers, and administrators.

For More Information

- Betebenner, D. W. (2009). Norm-and criterion-referenced student growth. Educational Measurement: Issues and Practice, 28(4):42–51. Yen, W. M. (2007).

- Vertical scaling and No Child Left Behind. In Dorans, N. J., Pommerich, M., and Holland, P. W., editors, Linking and Aligning Scores and Scales, pages 273–283.Springer, New York.

For more information, visit:

http://www.cde.state.co.us/research/GrowthModel.htm

http://www.doe.mass.edu/mcas/growth/

Questions? Comments? Email us:

Ana.Karantonis@ride.ri.gov

Kevon.Tucker-Seeley@ride.ri.gov